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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,919	06/08/2005	Hajime Okutsu	273577US0PCT	6700
22850	7590	09/02/2008		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER HAUTH, GALEN H	
			ART UNIT	PAPER NUMBER
			4111	
			NOTIFICATION DATE	DELIVERY MODE
			09/02/2008	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/537,919	<b>Applicant(s)</b> OKUTSU ET AL.	
	<b>Examiner</b> GALEN HAUTH	<b>Art Unit</b> 4111	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 1-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/8/2005, 11/14/2005, 4/14/2008</u> .                         | 6) <input type="checkbox"/> Other: _____                          |



## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election with traverse of claims 10-16 in the reply filed on 08/14/2008 is acknowledged. The traversal is on the ground(s) that the examiner has not provided indication that the claims were read in light of the description when considering the unity of invention and has not considered the relationship of the inventions of Groups I and II with respect to 37 C.F.R. § 1.475(b)(4) and MPEP § 806.03. This is not found persuasive because the examiner has considered the contents of the claims interpreted in light of the description which did not affect the interpretation of the material claimed and the examiner has considered the relationship of the two groups; however, the unity of invention requirement is not met by the two groups of claims due to the lack of a **special** technical feature as the technical feature is not **special** because it does not define over the prior art as described in the previous action filed 07/16/2008. Due to the lack of a **special** technical feature the groups cannot satisfy the unity of invention requirement under PCT Rule 13.1 because under PCT Rule 13.2 they lack the same or corresponding **special** technical features.

The requirement is still deemed proper and is therefore made FINAL.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

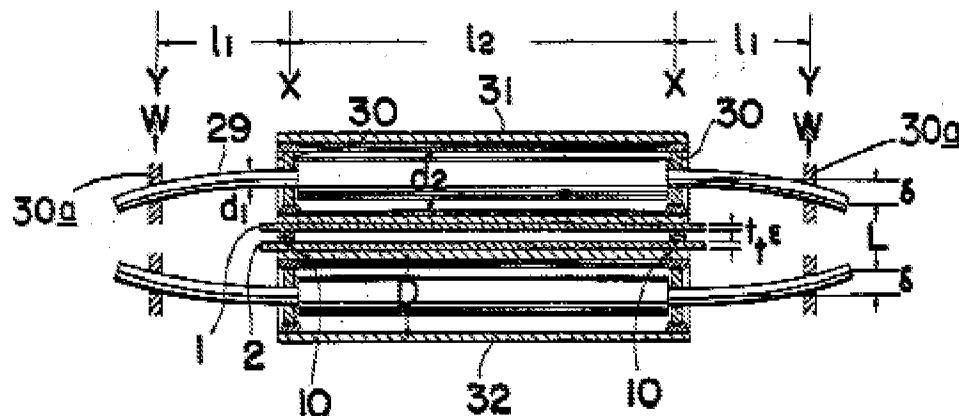
4. Claims 10, 11, 12, 13, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al. (PN 3988098).

a. With regards to claim 10, Kato teaches a method for producing a sheet of polymer using two continuous belts surfaces with the polymerizable material in between the two belts (abstract). Kato teaches using methyl methacrylate (col 8 ln 64). Kato teaches using an apparatus in which two feed belts positioned in face to face relationship running in the same direction without relative displacement (at the same speed) with two gaskets in between them with a polymerizable material between the belts to produce a sheet at the end (abstract) in which polymerization is carried out by heating the polymerizable material (col 6 ln 27-34). The apparatus belts are supported by rollers with a diameter of 90 mm opposite each other in the polymerization zone (col 12 ln 30-35). Kato does not teach that the rollers have a diameter of 100 mm to 500 mm; however, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use rollers of 100 mm in optimization of the process.

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b. With regards to claim 11, Kato teaches using rollers disposed in the polymerization section which are flexible (col 12 ln 30-33) as described in col 20 ln 46-68 – col 21 ln 1-26. As seen in figure 17 below, the flexibility provides both rollers with a crown shape to counteract the expansion forces of the gaskets and fluid polymer.

FIG.17



Kato teaches that all the rollers used are flexible in that these are the only rollers described to be involved in the polymerization zone (col 12 ln 30-33), and would therefor have greater than 4% of the rollers present in the described zone of the process with a crown shape (crown shape is interpreted to mean possessing a curvature).

c. With regards to claims 12 and 13, Kato as applied to claim 11 above teaches the use of crown shaped rollers throughout the polymerization process (col 12 ln 30-33). Due to the use of the rollers throughout the process the crown

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shaped rollers are taught to be present in the specified region of 30% to 90% of the total length of the polymerization zone from inlet to peak polymerization.

d. With regards to claim 16, Kato teaches a method for producing a sheet of polymer using two continuous belts surfaces with the polymerizable material in between the two belts (abstract). Kato teaches using methyl methacrylate (col 8 ln 64). Kato teaches using an apparatus in which two feed belts positioned in face to face relationship running in the same direction without relative displacement (at the same speed) with two gaskets in between them with a polymerizable material between the belts to produce a sheet at the end (abstract) in which polymerization is carried out by heating the polymerizable material (col 6 ln 27-34). The apparatus belts are supported by rollers with a diameter of 90 mm opposite each other in the polymerization zone (col 12 ln 30-35). Kato teaches the use of a mirror finished surface for the belts used (col 27 ln 15-17). Kato does not teach that the rollers have a diameter of 100 mm to 500 mm; however, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use rollers of 100 mm in optimization of the process. Kato does not teach the degree of mirror finish in terms of surface roughness and pinhole diameter; however, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a surface roughness of less than 0.1 micrometers and pinhole diameters less than 250 micrometers to optimize the effects of the mirror finish in the process.

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5. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al. (PN 3988098) in view of Jensen et al. (PN 4636345).

a. With regards to claim 14, Kato teaches a method for producing a sheet of polymer using two continuous belts surfaces with the polymerizable material in between the two belts (abstract). Kato teaches using methyl methacrylate (col 8 ln 64). Kato teaches using an apparatus in which two feed belts positioned in face to face relationship running in the same direction without relative displacement (at the same speed) with two gaskets in between them with a polymerizable material between the belts to produce a sheet at the end (abstract) in which polymerization is carried out by heating the polymerizable material (col 6 ln 27-34). The apparatus belts are supported by rollers with a diameter of 90 mm opposite each other in the polymerization zone (col 12 ln 30-35). Kato does not teach that the rollers have a diameter of 100 mm to 500 mm; however, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use rollers of 100 mm in optimization of the process. Kato teaches that the sides of the rollers are fixed as seen in Figure 17 above. Kato does not teach that an upper roll axis of an upper roll is supported by a beam connected to a spring which can be changed to adjust pressure applied by the roller to the material.

b. Jensen teaches a method for forming plastically deformable material with two continuous belts to produce a smooth uniform product (abstract). Jensen teaches that the belt supporting equipment can have compression springs



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attached that can be adjusted by adjusting the springs (col 10 ln 62-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply adjustable compression springs as taught by Jensen to the upper roll of the roller pair taught by Kato as both relate to double belt continuous processes. Given that the rollers taught by Kato are flexible the force applied from the springs taught by Jensen will cause deflection of the rollers which is also adjustable by changing the spring compression.

c. With regards to claim 15, Kato teaches using compression strength of 100 Kg/m (col 2 ln 36, 1 Kg/cm = 100 Kg/m).

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 11-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 11-13 recite optional language in the form of "when.." A then B. It is unclear whether the claim positively requires the limitations following "when" as the word implies an optional step or limitation.

***Claim Objections***

8. Claims 10-16 are objected to for being dependent on non-elected claims that have been withdrawn. Applicant is advised to move the limitations present in the claims

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depended upon into the current dependent claims. For the purposes of the examination above the limitations have been incorporated.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GALEN HAUTH whose telephone number is (571)270-5516. The examiner can normally be reached on Monday to Thursday 7:30am-5:00pm ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sam Yao can be reached on (571)272-1224. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

August 26, 2008

/GHH/

/Naeem Haq/

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Supervisory Patent Examiner, Art Unit 4111